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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,230	07/11/2003	Seok Kim	1567.1048	2342

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EXAMINER	
CREPEAU, JONATHAN	
ART UNIT	**PAPER NUMBER**
1745	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/617,230	KIM ET AL.	
	Examiner	Art Unit	
	Jonathan S. Crepeau	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/6/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action addresses claims 1-16, 18-27, and newly added claims 28-34. The petitions under 37 CFR 1.183 and 1.48(a) have been dismissed for the reasons stated in the decision mailed on August 27, 2007. Accordingly, claims 1-16 and 18-27 remain rejected for the reasons of record and claims 28-34 are newly rejected for these reasons. As such, this action is made final.

It is further noted that newly added claims 28-34 should not be underlined, pursuant to 37 CFR 1.121. To obviate this problem, it would be sufficient, when submitting a new claim set, to list these claims as "(previously presented)" or "(currently amended)".

Claim Suggestions

2. Regarding claim 2 and the amendment to [0020] of the specification, the anion "$N(C_xF_{2x+1}SO_2)^-(C_yF_{2y+1}SO_2)^-$" is recited. It is submitted that there should only be one "-" in the formula, since the overall charge of the anion is -1. Correction is suggested.

Claim Rejections - 35 USC § 102

3. Claims 1-16 and 18-34 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Kim et al (U.S. Pre-Grant Publication No. 2003/0073005). The reference is directed to a

lithium-sulfur battery comprising an electrolyte having a lithium imide salt and an organic cation salt. See in particular paragraph [0034].

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

4. Claims 1-14, 16, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Koch et al (U.S. Patent 5,827,602). The reference is directed to an electrolyte for a nonaqueous battery (see abstract). The electrolyte comprises a molten organic salt and an organic solvent (see col. 5, line 11). The molten salt may comprise cations such as 1-ethyl 3-methyl imidazolium (EMI) and 1,2-dimethyl 3-propylimidazolium (DMPI) (see Table 2). The electrolyte may further comprise a lithium imide salt in an amount of, e.g., 250 mM (see col. 4, line 64). The organic solvent may comprise a number of solvents including dioxolane and dimethoxyethane (see col. 5, line 21). Regarding the recitation of "for use in a lithium-sulfur battery" in the preambles of claims 1, 4, and 20, this recitation is given little patentable weight as it recites the future intended use of the electrolyte. As such, the instant claims are anticipated

Claim Rejections - 35 USC § 103

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al or Koch et al.

The reference is applied as stated above. However, the references do not expressly teach the respective molarities of the first and second salts as recited in claim 15.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be sufficiently skilled to adjust the relative quantities of each salt to affect characteristics such as conductivity and viscosity. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). As such, the claimed ranges would be rendered obvious.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-16 and 18-34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims of copending Application No. 10/434,086. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

8. Claims 1-16 and 18-34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-46 of U.S. Patent No. 7,241,535 and claims 1-14 of U.S. Patent No. 7,247,404. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Response to Arguments

9. Applicant's arguments filed November 1, 2006 have been fully considered but they are not persuasive. Regarding claims 1, 4, and 20, Applicant contends that the preambular recitation "for use in a lithium-sulfur battery" is not merely a recitation of future use, but provides a

physical limitation. However, this argument is not persuasive, since the body of the claim defines a structurally complete invention (i.e., the electrolyte). See MPEP 2111. Also see *Intertool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 70 USPQ2d 1780 (CAFC 2004).

Regarding claim 16 and 18-19, Applicant states that Koch "merely provides a list of solvents that may be used in a electrochemical cell and does not teach or suggest at least two groups of solvents selected from a weak polar solvent group, a strong polar solvent group and a lithium protecting solvent group." However, Koch et al. expressly teach a solvent mixture comprising 1:1 PC:DMC in col. 9, line 50. PC is identified as a "strong polar solvent" in [0045] of the instant specification, and DMC is identified as a "weak polar solvent" in [0044]. Accordingly, Koch et al. is still considered to be anticipatory of the subject matter of claims 16 and 18-19.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jonathan Crepeau
Primary Examiner
Art Unit 1745
August 29, 2007